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computing services

Computer News



Season's Greetings

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Cover

Many thanks to Patricia Hood for designing this month's cover.

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The Editor
COMPUTERNEWS
11 King's College Road, Room 207
University of Toronto
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Let's Talk About It: Planning for Next Year

Gentle reader, it's that time again (no, not Christmas) when we start planning for next year's activities. This will be my first opportunity to go through the planning process with enough time to really carry the whole thing through in a fairly systematic manner. That is not to say that last year's plan did not turn out well; in fact we were pretty satisfied with it. However, this year we have more time, we have a Board to bounce ideas off of (though the Review Group was very helpful last year) and the University has other committees (Communications, Administration, Academic, and Computing Facilities and Services) who can initiate ideas and projects for inclusion in our plan.

There are two major parts to our planning efforts for next (or any) year. The first one is not very visible, seems pretty mundane and requires an awful lot of time and effort. It is the preparation of our projected budget for normal continuing operations. We must forecast price increases, service changes, supplies usage (a not inconsiderable sum), personnel costs including part-time, overtime, recoveries, other revenue, commercial income and probably a number of other things I've forgotten. UTCS is a fairly complex organization to budget and manage, and in many cases our tools are old, outdated or non-existent. So, this whole "base-budget" activity is a lot of effort.

In parallel with this activity the second major part of our planning effort is the preparation of our annual plan. This plan addresses any additions, deletions or changes to our usual facilities and services, including major new initiatives. We'd like to think our planning process is fairly systematic and we try to make it so. However, the systematic train of activities is certainly not sequential, and the whole process goes through a number of iterations. We try to follow a process whereby we:

1. Determine strategic objectives for UTCS.
2. Outline general areas of activity related to the strategic objectives that we will focus on.
3. Consider specific projects within each area for implementation next year.

The strategic objectives obviously must fit in the overall context of computing and networking on campus. One of the major issues we must address is the monetisation (a truly terrible word) of entitlement funds and the move to real money charging. Another is the future of the IBM 3033/U16 Partnership Machine and BICS (Basic Instructional Computing Service). Another is the whole telecommunications networking issue, and yet another is the future shape and provision of administrative computing.

An interesting observation is that, with all the agreement and support for a practically unarguable strategic direction, often nothing still happens simply because of a lack of funds. The point is, I feel, that even if we know we can't afford in the short term to move in the optimal strategic direction, we still need to assess and continue to be aware of what that direction is and what the objectives are.

There are a number of reasons why. First, technology is moving fast enough that it is often easier to make quantum leaps in its use and implementation rather than to let solutions or situations evolve. Thus, delays because of financial constraints don't have to mean the abandonment of the goal, but only a periodic reassessment of the means. The second reason is obvious, but still is worth saying. If we don't know where we should be going, we'll never get there except by blind luck and blundering. The third reason is that if we don't plan strategically because of short-term vicissitudes, it can lead to a generally hopeless attitude, which can become contagious. I'm not really trying to be inspirational here, but to make the point that even in tough times

continued...

Let's Talk About It. continued

(and we're certainly there) cleverness and initiative can often allow us to continue to move in our strategic directions and at least retain the basic thrust at relatively low cost.

After all that high sounding verbiage, you may well wonder what our strategic direction and objectives are. I am forced to fall on my sword and admit that they are, at least to date, very sketchy and so broad that practically anything we do can be said to fit somehow. However, there is progress being made right at this moment. Al Heyworth is preparing a strategic framework for the Telecommunications Committee. An *ad hoc* group chaired by Eva Swenson (including Al, Bob McGimpsey, Mark Lippard, Ken Sevcik, and me) has prepared a "white paper" for input into the Administrative Committee. Planning for the future direction of instructional computing has begun. Another group is interested in large scale scientific processors. Thus, there is considerable effort going into both strategic and short-term planning.

Now let me give you some idea of our detailed planning process. We clarify our strategic direction as well as we can, with obvious reiterations throughout the whole process. We develop internal proposals from our management group. We review and analyze these as a management group and assign a particular manager to explain, expand, cost and justify each one. These then form our internally generated "wish list." Most of these are really user-oriented, however, in terms of expanding or improving service. We contact our user groups, various committees and our major users for suggestions. We ask them to go through the same justification procedure that we follow.

We merge the internal and external lists, classify them as instruction, research administration or internal and look for relationships and dependencies. We attempt to prioritize and come up with a final prioritized potential project list. We use this list to prepare a draft plan, including costs, for review and further prioritization by our Board and the other interested groups and committees. We finally arrive at a plan with lists of prioritized projects which usually encompass quite a bit more than we could realistically do or the University can realistically afford.

At this point the process becomes very interesting, since there are some fairly crunchy policy decisions required, particularly about the relative funding across the different categories (research, instruction and administration). These are decisions that UTCS can't and shouldn't make in isolation (maybe not at all). Assuming by some arcane process of consultation, discussion, arm-twisting and politics that relative funding amounts have been arrived at, the next step is to pare down or select projects from each category and reiterate. This process continues until we have a plan which is acceptable to our Board, Professor Nowlan and the Planning and Resources Committee of Governing Council (and which we feel we can accomplish). As you can see, the process is long, requires a lot of preparation and somehow never seems to satisfy everyone. However, it appears to be fairly equitable and to work as well as can be expected in our environment. In my next article, I may be able to give you a glimmer of our plan itself.

Warren Jackson

New Subscription Policy

This article, which appeared in last month's COMPUTERNEWS, is being rerun for the benefit of our new readers and those who may have missed the first run.

We are pleased to announce the continuation of our free subscription policy. There are some important changes, however, which will affect **all** readers (including CAN holders).

1. Beginning immediately, all subscriptions will be annual, running from January to January.
2. All subscribers, including CAN holders, must renew their subscriptions each year. This may be done by filling out the Annual Computernews Subscription Renewal Form appearing in the October/November and December issues of *COMPUTERNEWS*. Any

subscription not renewed by the beginning of January will be dropped.

3. New account holders who come to UTCS during the subscription year will become subscribers automatically but will still have to renew in time for the following subscription year. Similarly, a reader whose subscription has been dropped may renew at any time but must also renew before the following January if the subscription is to continue.

With these changes, we hope to reduce our subscription list to a manageable size by including only those who actually need *COMPUTERNEWS*. We regret any inconvenience this new policy may cause our readers.

Martha Parrott

Fall DECUS '83

The Fall '83 Symposium of the Digital Equipment Computer Users Society was held at Las Vegas' MGM Grand Hotel on October 24-28. The lavish shows, the warm desert sun and the excitement of the casinos contributed to making this DECUS conference one of the most interesting in recent years. In spite of the glamour of the locale, however, the approximately 4500 attendees were interested primarily in the conference's 600-plus sessions. This article will describe some of the conference highlights which are of interest to the University of Toronto computing community.

For Digital's DECsystem-10 and DECsystem-20 customers the most significant sessions were those concerned with the impact of the May/83 cancellation of the Jupiter Project. ("Jupiter" was DEC's code name for the 36-bit processor meant to replace their present top-of-the-line

KL10 CPU.) Following that announcement, Digital developed a plan for their customers which they call an "Integration Strategy." Much of the activity at the conference involved Digital representatives elaborating on this plan and DEC's mainframe customers expressing their opinions of it.

Digital's Integration Strategy

According to Digital, this integration strategy involves "a planned, stepwise growth into a distributed computing environment," which DEC will facilitate by providing the appropriate tools, such as network software, data interchange utilities, compatible language processors, and so forth. Representatives of DEC's Large Computer Group (LCG) emphasized that they are not abandoning their mainframe customers; rather, they have committed themselves to enhancing the systems for at least five years and to maintaining them for a minimum of ten.

continued...

Fall DECUS '83 continued

Several of DEC's announcements seemed designed to reassure those customers that they were not simply being cut loose to float or sink on their own. For example, customers who have an immediate need for more total horsepower can order the KL10R, a repackaged KL10 which meets the new FCC standards for electromagnetic emissions.

In the area of future hardware enhancements, DEC announced that they were developing a field upgrade which would improve the performance of the KL10 by about 10%. Also mentioned were the previously announced CI20 (Computer Interconnect, a 70 megabit communications bus), HSC50 (Hierarchical Storage Controller, an intelligent disk and tape controller), RA60, RA80, RA81 (various disks which connect to the HSC50), and NI (Network Interconnect, DEC's new buzzword for Ethernet). It was emphasized that each of these devices would be supported on both DEC-10 and DEC-20 systems. There were also price reductions announced for add-on memory, entire systems and communications equipment as well as some software products.

One particularly interesting offering is a new 5-year field service contract which has a fixed price for the first two years and a maximum increase of 5% for years three, four and five. An added attraction is that only Digital is bound by the contract; the customer can cancel the deal at any time.

New Processors

One thing DEC's Integration Strategy does not encompass is a new 36-bit processor. Instead, customers who need more power in a single processor than DEC can currently provide have been asked to wait until the (as yet unannounced) follow-on VAX becomes available. One rumour has it that this new 32-bit machine (sometimes referred to as "Venus" or "Superstar") will have twice the power of the KL10 and will

be announced some time in the last half of 1984. In addition DEC is thought to have begun the development of the processor which will eventually follow Venus.

On the other hand yet another rumour making the rounds was that Venus was as much behind schedule and below its targeted performance specifications as Jupiter had been when it was cancelled. This prompted some Digital customers to express concern that Venus might not be in production by the time it is needed. Still others suggested that even if it is, neither a follow-on VAX processor nor any VMS release which might come along in the next few years would be capable of supporting their applications.

It is possible, however, that what DEC will not provide, someone else will. At DEX-PO, the parallel conference which promotes DEC-compatible hardware and software, Tymshare, Inc., displayed their new 36-bit processor. "System 26KL" has about 80% of the power of DEC's KL10 and is compatible with TOPS-20 application programs. Tymshare is already working on a follow-on processor which they hope to announce in one to two years.

As I understand it, "Integration" consists of two main phases. DECsystem-10/20 application programs already in place should continue to be run on the systems for which they were written. If such a system requires immediate expansion, DEC recommends doing so by adding more equipment of the same class, possibly by moving up to a tightly- or loosely-coupled multiprocessor system. Also, by using DECnet, multiple systems can be interconnected into a network including DECsystem-10s, DECsystem-20s and VAXs as well as the smaller PDP-11s. Digital claims the tools required for this level of integration are either in place now or will be shortly.

In the long term, DEC expects new applications to be written mostly for VAX systems. They believe this will result from the reduced cost of computing on the VAX and the improved performance and functionality

continued...

Fall DECUS '83 continued

of DEC's future VAX processors and VMS operating systems.

Customer reaction to these developments ranged from interested neutrality to outright hostility. DECsystem-10/20 sites with relatively limited growth rates (such as UTCS) can afford to bide their time while deciding how these events impact their future plans. Other sites have more pressing requirements. This appears to be particularly true for some of the larger commercial shops which have to make important business decisions on a very fast time scale. For them such issues as the availability of more powerful processors, network functionality and performance, language compatibility, and the time scale over which these issues will be resolved are major, immediate concerns.

The issue of language processors, in particular, seems to be the area in which Digital has lost the most credibility. Whereas the development of FORTRAN and COBOL, for example, is being vigorously pursued for VAX/VMS systems, language development for LCG systems appears to be slowing markedly, especially for the DECsystem-10. The issue of language compatibility is especially important to sites which want to integrate, that is, to develop heterogeneous network applications, or, at the least, to move programs from one system to another. However, there are tentative signs that Digital may be willing to reassess this situation.

TOPS-10 Version 7.02

The next version of the DECsystem-10 operating system is in the last phase of field test and should reach the field by next June. The major development effort in version 7.02 of TOPS-10 was support for DECnet phase 3. This elevates TOPS-10 to the status of full partner in any DECnet network to which it is connected. DECnet features implemented at the phase 3 level include multipath adaptive routing, virtual terminal support, network file transfer and network management. It is worth noting

that this functionality is a prerequisite for full participation in DEC's Integration Strategy.

The second major development effort in 7.02 was to improve disk I/O performance. The techniques used to accomplish this include disk caching (one block per job is used by the operating system to keep interesting disk data in main memory) and using "big buffers" (appropriately written utilities can read or write multiple disk blocks with a single I/O monitor call). In addition swapper I/O will be multi-threaded and distributed across the disk swapping area.

7.02 also includes enhancements to the logical name facility. These include allowing full file specifications and wildcards. In addition a new utility program called DECLAR will support these features. Another useful feature will reside in the communications front end. The system will perform automatic baud rate detection for speeds up to 9600 baud. Finally, new hardware supported includes the TU78 (6250 bpi) tape drive and the LN01 laser printer.

Looking further into the future, version 7.03 of TOPS-10 is now in the early stages of development. This normally means that it will be ready to deliver to customers sometime near the end of 1985. The major enhancements expected in it are support for DECnet phase 4, the NI (Ethernet), and the new generation of disk hardware such as the CI bus, the HSC controller and the disks which connect to it.

VMS Release 4.0

The next release of the VAX operating system will go into field test shortly and should be released sometime during the summer of 1984. Its major emphasis is on "VAX Clusters." A cluster in this context is two or more VAX processors (running the appropriate version of VMS) attached to a CI780 Computer Interconnect bus. The shared file system is implemented by connecting disk drives to an HSC50 con-

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Fall DECUS '83 continued

troller which is also connected to the CI. This collection of processors and disk equipment acts as a single system, more powerful and/or cost effective than the individual components acting separately. The major advantages of such a system are that it permits CPU power and disk storage to grow incrementally, and when properly configured, it can be extremely reliable.

Release 4.0 has also made impressive advances in the area of data security and integrity. The Common Journaling Facility, together with program checkpointing and a variety of recovery utilities, can make appropriately programmed applications almost invulnerable against loss of data of any kind. In addition, the use of optional features such as data encryption, Data Security Auditing, passwords and special user privileges will help protect data against unauthorized access.

Finally, a number of features have been added simply to make the system easier to

use. There are new SYSGEN parameters (of course), terminal support has been enhanced, and a new version of SORT/MERGE is included. DCL will now remember the last 20 commands entered and allow the user to edit and resubmit any of them. There is also a new job controller and a new print symbiont.

This article is only a brief review of the vast amount of information obtained at the Las Vegas DECUS. Any reader who wishes to discuss these or other related topics is invited to contact the author at 978-4085. It is likely that at least one of the four UTCS representatives who attended will be able to elaborate on the issues discussed there.

Future DECUS Symposia will be held in Toronto (May 22-25, 1984), Cincinnati (June 4-8, 1984) and Anaheim (December 10-14, 1984).

Dr. Edmund West

Documentation Update

The September issue of *COMPUTERNEWS* described briefly the general structure of the new UTCS documentation. This article will develop that theme.

The name of the entire structure is UTCS GUIDE TO PRODUCTS AND SERVICES (GPS hereafter); this is comparable to USERBOOK as a whole. GPS is a two-tiered structure: the top level comprises an Introduction providing general information about UTCS and its policies and a Catalogue divided into very general subject headings; this level will be printed and sold through the Information Office (Room 206, Engineering Annex). The second tier includes all other UTCS documentation and some vendor documentation. Each UTCS document may be called Guide, Tutorial, Workbook etc., depending on its function. Except for a few which need to be hard-copy, UTCS documents at this level are on-

line. Vendor documents remain in the form (online or printed) provided by the vendor.

The subjects currently planned for the Catalogue are Access, Storage, Numerical Products, Utilities, Text Products, Statistical Products, Languages, UTCS Accounting, Graphics, and Natural Language Analysis. Each part of the Catalogue is designated UTCS Catalogue: Subject. Each consists of introductory information followed by a series of fairly short descriptions of the relevant UTCS products or services, usually in abstract form. The abstracts use the same format as those found in the current USERBOOK module 3.7 Statistics Products. They are intended to supply potential users with the information needed to decide whether the product will serve their purpose. All detailed information appears at the second level; abstracts point to the appropriate

continued...

Documentation Update continued

Guide(s) or other documentation.

The major benefit of online documentation is that maintenance is simpler and less time-consuming. It has become increasingly difficult to update documentation promptly (or at all!). Once the new system is in place, we hope to be able to provide consistently up-to-date information so that users can get on with their work unimpeded.

New UTCS Documents in hardcopy:

The SOS Workbook
 UTCS Guide to Mainframe File Transfer Facility
 UTCS Catalogue: Text Products

New UTCS Guides online:

UTCS Guide to APL (MANUAL=APL)
 UTCS Guide to GPJS (MANUAL=GPJS)
 UTCS Guide to WYLBUR (MANUAL=WYINTRO)
 UTCS Guide to XEROX 9700 Printing

MANUAL=X9700SAM (with font samples, printed on the 9700)

MANUAL=X9700 (without fonts, output from line printer)

This Guide is also available in hardcopy from the Information Office. This is the cheapest way to obtain it.

To print online documents, WYLBUR users type "do document?", TSO users type "help document".

Martha Parrott

Status of the Backlog Display

During the past several weeks, users of the 3033/N12 may have noticed that the Backlog Display program has failed frequently enough to be considered unreliable. The exact cause of the failure is still unknown, since system programmers, who would normally investigate it, have been heavily involved in the 3380 conversion and accompanying activities. It is probable that the failures, characterized by the program going into a loop, are related to the recent changes in the operational environment.

UTCS has decided that rather than fix the existing program, which is dated by the techniques it employs, a replacement should be developed using standard IBM features. It is expected that the replacement will be ready by January 1984. TSO and WYLBUR users should not experience any

differences from the way in which they currently access backlog information. Because the use of card based remote batch terminals is rapidly diminishing, automatic backlogs for these terminals are not cost justifiable. Instead, limited function system consoles will be made available in these terminal sites. Users will be able to use them to display backlog information.

Until January, the current version of Backlog will continue to run in its impaired condition. Operations staff will regularly check to see if it is looping and restart it, if it is. During periods of unattended operation, the Backlog program will **not** be run since it would jeopardize the overall availability of the system.

Don Gibson

Testing SCRIBE on the IBM Machine

UTCS is currently working towards getting SCRIBE on the IBM 3033/N12. As a part of the Annual Plan, money was allocated to buy SCRIBE on both the DECsystem-10 and MVS systems. The success of SCRIBE on the DECsystem-10 has encouraged us to proceed now with an MVS version.

SCRIBE on the IBM 3033/N12 would be available to a large new user community. We believe that our IBM users should have access to a Class A formatting package of SCRIBE's quality on their machine. Furthermore, the presence of SCRIBE on the two UTCS machines would give current and future SCRIBE users a great deal of flexibility in their choice of computing environments. For these reasons, we are anxious to begin evaluating SCRIBE on our IBM machine soon.

At present, we expect SCRIBE to be available for testing on the IBM 3033/N12 MVS machine early in 1984. At that time, we will

be evaluating the program to see how compatible it is with the DECsystem-10 version, to see if the cost of using it is acceptable, and to judge how well it fits in to an MVS world. If it is judged to be satisfactory on these counts, UTCS will acquire SCRIBE for the IBM system on a permanent basis, supporting it as a Class A product.

The possible acquisition of SCRIBE on the MVS machine will not affect the status of SCRIPT. SCRIPT is currently a Class B product on the IBM system, and it will remain so.

Your participation in the SCRIBE test is welcome! If you are currently an IBM system user and wish to try out SCRIBE during the test period, please contact me at 978-3995.

John Bradley

GLIM

GLIM, a program designed to facilitate the fitting of generalized linear models, is one of the most widely available packages that UTCS has. It has been in use on the DECsystem-10 and the PDP 11/70 for several years and can now be used on the IBM General Purpose Job Stream.

GLIM is likely to be most useful in exploring data, as a tool for experimenting with the fitting of various models; it can also be useful for simple data manipulation and display. GLIM has been written to be usable in either of two modes, batch or interactive. Currently, the only mode of execution available with the IBM version is

batch. The characteristics of the program differ slightly among the three versions, due to machine dependencies.

GLIM is a Class C product. This means that it is available for use, but that the Central Advising Office can not be expected to help people with problems. Manuals for GLIM can be ordered through:

Numerical Algorithms Group Ltd.,
1131 Warren Avenue,
Downers Grove, IL
60515 USA

Diane Mitchell

Christmas & New Years Hours of Service

UNIVERSITY OF TORONTO COMPUTING SERVICES CHRISTMAS & NEW YEARS HOURS OF SERVICE											
	23 Fri.	24 Sat.	25 Sun.	26 Mon.	27 Tue.	28 Wed.	29 Thu.	30 Fri.	31 Sat.	1 Sun.	2 Mon.
LIBRA Service	X	X	X	X	X	X	X	X	X	X	N
BICS Service	X	X	X	X	X	X	X	X	X	X	N
IBM 3033/N12 Services	N/UO*	UO	UO	UO	UO	UO	UO	UO	UO	UO	N
DEC1090 Services	N/UO*	UO	UO	UO	UO	UO	UO	UO	UO	UO	N
DEC 11/70 Services	N/UO*	UO	UO	UO	UO	UO	UO	UO	UO	UO	N

* On Friday, December 23, standard services will be in effect until 17:00. Unattended operation of these machines will commence at 17:00 on December 23 and terminate at 24:00 on January 1.

Legend

- X** - service unavailable
- N** - normal hours of service
- UO** - unattended operation:
 - for the IBM 3033/N12 computer, all services except GPJS Classes B, C, and E, Calcomp and Gould plotting and TSO are available
 - for the DEC1090 computer, all services except tape mounts are available
 - for the DEC 11/70 computer, all services except tape mounts, Varian plotter, and the CAT phototypesetter are available

During the period of unattended operation the Arts and Science Terminal, Education and Research Interactive Terminal Room, and the Physics Terminal will be closed. It is planned to have the Engineering Annex Terminal open on a limited basis during the period December 26 through December 30. Please check at this site for precise arrangements.

Users should note that this is a tentative schedule and may be altered via HOTNEWS and alert notices closer to the Christmas period.

Mainframe File Transfer Facility

The Mainframe File Transfer Facility is a fairly new UTCS service that was introduced in August. It provides for file transfers from a user's micro/minicomputer to one of UTCS's mainframes through PACX Class 73 at a speed of 1200 bits per second. It is well suited for transfers to the IBM 3033/N12, although users can also transfer files to the DECsystem-10 or PDP 11/70.

It was designed, in particular, to meet the needs of users who regularly transfer modest amounts of data to a mainframe and really need to have a reliable way of doing this.

Although this service does not do any

error-checking, we have found that the error rates have been very low, and the reliability has been high over the last few months.

Users of this facility will require a File Transfer Code (FTC) to access this service as well as having a GPJS SAC. To obtain a FTC contact the UTCS Accounting Office at 978-8703.

For more information and detailed instructions on its use, see the *UTCS Guide to Mainframe File Transfer Facility* available from the Information Office (Room 206, Engineering Annex).

Philip Murton

UTCS SORT Procedure Change

With the arrival of the IBM 3380 DASD storage, there will be a considerable number of changes in the way sorts, especially large sorts, will have to be handled at UTCS.

UTCS has prepared a document which defines all the changes in dealing with the sort/merge program at UTCS. It should be read by every sort/merge user, since several procedures for dealing with large sorts will no longer work.

To obtain complete information about these changes,

WYLBUR users who run sorts enter:

DO SORT3380

TSO users enter:

SORT3380

GPJS users code:

// EXEC SORT3380

Herb Kugel

SALE SALE SALE

The remains of the CSS lab are being sold off at bargain prices!

The following price list of hardware would be of interest to DEC Unibus and Q-bus (PDP-11 and LSI11) system owners. In addition, whole systems can be configured from the parts below. Some of the applications appropriate for these systems are word processing, data acquisition and analysis, and process control.

Prices shown are for purchasers within the University, buying with University funds. Others may inquire, but the prices below will not necessarily apply.

For further information contact Army Sokoloff at 978-4549.

Equipment List

GT44 System	Price
1) PDP11/40 CPU with memory management and float hardware	\$1500
2) 48Kb DEC core memory (3 x 8kw MFP11-LP)	\$ 250
2b) 72Kb MOS memory (3 x 12kw MOS memory)	\$ 150
3) LA 34 hardcopy terminal (30 cps)	\$ 800
4) VR17 17" vector graphic display terminal	\$1000
5) 2 x RK05 cartridge disk drives, 2.5 Mb each	\$1500/pr
6) RK11 controller for RK05s above	\$ 500
7) 2 Wangco tape drives, 800/1600 bpi, 75 ips, with datum controller	\$5000
9) 600 lpm printer (Data Printer Corp. model v132-c) with Unibus controller	\$5000
10) Documentation card reader with controller	\$ 300
11) Summagraphics 20" x 20" digitizing tablet c/w CRF controller	\$ 200
12) 2 x DL11-E asynchronous interface with modem control	\$ 200
13) PC11 paper tape reader/punch with controller	\$ 100
14) Time-of-day clock (CRF)	\$ 50
15) DR11-C parallel interface (Unibus)	\$ 300
17) LPS11 8 channel A/D, 2 chan D/A and digital I/O	\$1000
18) Unibus expansion box	\$ 500
19) Printronix 300 lpm dot matrix printer c/w Unibus controller	\$4000
20) Analog chart recorder	\$ 500
21) 2 x RL01 5 mbyte cartridge disk drive	\$1500
22) RL02 10 mbyte cartridge disk drive	\$3000
23) RL11 controller for above drives (up to 4 RL0x drives)	\$1500
24) 4 large cabinets with power supplies & fans approx. 6'	\$ 400
25) 1 cabinet as above, 4'	\$ 350
26) Zeta pen plotter and controller	\$ 350

GT40 System

1) 11/05 processor c/w 56kb memory, chassis & power supply and GT40 graphics terminal	\$ 750
2) DEC TU10 800 bpi tape c/w Unibus controller	\$3000
3) Paper tape punch	\$ 100
4) Dual RK05 compatible drives and Unibus controller	\$1000

continued...

SALE continued

VIVA Systems (quantity 2):

Price

- 1) VT103 - VT100 type terminal c/w 4 slot Q-bus backplane
- 2) DEC 11/23 CPU board with FP chip and MMU
- 3) DSD 880 7.8 Mb Winchester disk and
single 8" floppy drive with controller
- 4) 3 x 64kbyte DEC RAM boards
- 5) DLV11-J 4 line serial board

TOTAL

\$6995

Miscellaneous Minicomputer Components:

Note: boards are Q-bus unless specified otherwise

Qty	Description	Each
2	VT103 - VT100 type terminal c/w 4 slot Q-bus backplane	\$1695
5	Q-bus 8-quad slot backplanes	\$1500
4	19" rack-mount cabinets 2' - 4'	\$ 350
10	11/2 CPU boards	\$ 200
1	KDF11 11/23 CPU boards	\$1500
5	MSV11-DD 64kb memory boards	\$ 250
5	MSV11-DC 32kb memory boards	\$ 200
2	LA36 30 cps printers with keyboard	\$ 600
2	LA34 NEW! 30 cps printer with keyboard	\$ 800
1	RL01 5 mbyte cartridge disc c/w controller	\$2000
1	RLV11 controller for above	
5	RLV11 controller	\$ 500
10	TCU-50 real-time clock (Q-bus)	\$ 100
1	KWV11-A real-time clock (Q-bus)	\$ 350
1	DLV11 asynchronous line interface (Q-bus)	\$ 100
1	DLV11-E asynchronous line interface (Q-bus)	\$ 150
6	DLV11-J 4 line serial board	\$ 350
1	Dynalogic dual RX02 Disc drives c/w controller	\$2000
1	ADV11-A 16-chan. 12-bit A/D interface	\$ 500
2	DD11-A 4-SPC slot Unibus backplane	\$ 200
2	DD11-B 4-SPC slot + 2 DF11 slots Unibus backplane	\$ 200
3	DL11-E asynchronous line interface (Unibus)	\$ 150
4	DPP-11 data Printer PDP11 Unibus interface	\$ 250
11	DUV11 synchronous serial line interface	\$ 500
400	reels of used 1/2" computer tapes	\$ 3
3	RL01 disk packs	\$ 150
40	RK05 disk packs	\$ 25

Short Course Registration Policy

Beginning January 1, 1984, we are initiating a new registration policy. Anyone intending to register for UTCS Short Courses must complete a registration form. Users are welcome to enquire about courses and available places by phone, but they must register in person.

The usual \$10.00 administration fee must still be paid for each course at the time of registration. Those wishing to take more than one course may pay this from a non-computing appropriation number, if there is one available to them. However, they must obtain an authorizing signature from the owner of the number before registration is

complete. The administration fee is not refundable, but registrants who find themselves unable to attend a course may reschedule at no extra charge, if they notify UTCS Education Services prior to the day the course begins.

Registration forms may be picked up in the UTCS Education Services Office, Room 207, Engineering Annex.

Please note that this new policy will not affect anyone who was put on a course waiting list prior to January.

Irene Rosiecki

UTCS Non-credit Short Courses

For the beginning of the new year we have scheduled the following short courses. Registration is required for any of the courses you may wish to attend, as the Education Facility has limited seating capacity and, for our hands-on courses, a limited number of terminals available. Anyone interested must register by filling out a registration form, which may be picked up from:

Educational Services Support Specialist
Engineering Annex, Room 207

If the course you are interested in is fully booked, a waiting list will be kept and another course scheduled. You will then be contacted as to the exact date and time of the course. Please note that we reserve the right to cancel courses, if registration is too low.

A non-refundable administration fee of \$10.00 must be paid by cash or cheque at the time of registration. Receipts will be is-

sued. Unfortunately, UTCS can no longer accept non-computing appropriation numbers to cover a \$10 charge for one short course.

All short courses are held in the UTCS Education Facility, Room 221, McLennan Physical Laboratories.

Registrants are required to hold a valid Service Access Code (SAC) for use during the course. You may arrange to open an account with the UTCS Accounting Office, McLennan Physical Laboratories, Room 337.

DDS101 - Introduction to IBM Disk Datasets

This course is the prerequisite course for anyone who is planning to take the WYLBUR short course. It is intended for people who are switching from cards to interactive computing or for people who would like to use disk files on the IBM system.

continued...

Short Courses continued

DDS101 will present the basic concepts required to work with disk datasets on an IBM system. The course includes an overview of steps required to create and maintain datasets. Some examples of the application of datasets in WYLBUR, SAS, and SPSS will be given.

Date: Jan. 13/Jan. 27/Feb. 17

Time: 1:00 - 3:00 p.m.

DEC101 - DECsystem-10 Novice Users

This is an introductory course designed to provide novice users with the basic information required to start using the DECsystem-10.

Major Topics of Discussion: Terminal input/output capabilities (provided by the system), login/logout, disaster handling, file management and handling, how to get hardcopy, how to reclaim lost files, and how to get help on the system. There will not be any detailed discussion of text editors or formatters.

Date: January 19, 1984

Time: 9:30 a.m. - 3:00 p.m.

DEC201 - DECsystem-10 Advanced Users

This course will discuss the DECsystem-10 in some detail. The object of the course is to provide information that would be useful to most users over the long term. Emphasis will be on details not likely to be of interest to those users who are mainly concerned with text processing rather than programming. This course is only for users who have some experience with the DECsystem-10 and is not intended for novice users.

Major Topics of Discussion: System structure and components, little known features, Monitor Interpreted Commands (MIC), file system details (including the file daemon), tape use and file backup/restore, a basic introduction to TECO, the mail systems, and the IBM RJE. Also included will be a

thorough examination of all monitor commands and tools for programmers.

Prerequisite: DEC101

Date: February 23, 1984

Time: 9:30 a.m. - 3:00 p.m.

DEC301 - DECsystem 10 Assembler

This course will consist of five lectures aimed at discussing MACRO-10, the assembler language used on the DECsystem-10. The course is very intensive and is intended for experienced DECsystem-10 users only.

Major Topics of Discussion: Hardware considerations, DECsystem-10 instruction set, assembler formatting and pseudo-operations, monitor calls, and debugging techniques.

Prerequisite: DEC101, DEC201

Date: January 9-13, 1984

Time: 10:00 a.m. - 12:00 noon

JCL101 - JCL for Beginners

This course is intended as an introduction to IBM JCL (Job Control Language). Users taking this course will be expected to have some knowledge of a programming language or experience with a computing application.

Major Topics of Discussion: Use of JOB, EXEC, and DD statements.

Date: February 27 - March 2, 1984

Time: 11:00 a.m. - 12:00 noon

SAS101 - Introduction to SAS

This is an introductory course that places a heavy emphasis on concept and the basic approach to statistical computing. Some elementary JCL will be covered and enough SAS will be taught to create a file from simple raw data for preliminary analysis. Some reference will be made to some of the features of SAS. This is not a hands-on course, though exercises may be given out

continued...

Short Courses continued

for students to do after the course.

Major Topics of Discussion: Definition of terms (i.e., variables, observations, and missing values), creation of files from raw data, data cleaning, and descriptive statistics.

Prerequisite: DDS101, WYL101

Date: January 23-27, 1984

Time: 10:00 - 11:00 a.m.

SAS201 - Intermediate SAS

This course is broken up into five separate, one hour sessions, each covering a specific topic. Students have the option of choosing which topics are of interest to them and may attend as many sessions as they wish. Sessions 4 and 5 cover new topics which have only recently been introduced.

Prerequisite: SAS101

Below are the session breakdowns for SAS201.

Session 1 - Input Formats and Report Writing

Topics of Discussion: SAS formats, pointer controls and format modifiers, PUT and FILE statements, and LAST and FIRST by-variables. Some examples of how these statements can be used together to produce customized reports will be provided.

Session 2 - SAS Regression Procedures

Topics of Discussion: SAS uses several procedures for regression analysis. Similarities and special features of these procedures will be discussed giving the student a better understanding of how to decide which procedure to use.

Session 3 - SAS Multivariate Procedure

Topics of Discussion: Procedures for analysis of variance, multivariate analysis, discriminant analysis, and clustering. Overview of these procedures and their uses will be presented.

Session 4 - SAS Macro Language

Topics of Discussion: SAS Macro Language which has been greatly expanded in SAS82. New macro features will be discussed, and potential uses and abuses will be examined.

Session 5 - PROC TABULATE and PROC CALENDAR

Topics of Discussion: TABULATE which constructs tables of descriptive statistics from compositions of classification and analysis variables and CALENDAR which displays data from a SAS dataset in a month-by-month calendar format. Examples of these two new procedures will illustrate flexibility and usefulness.

Date: February 6-10, 1984

Time: 10:00 - 11:00 a.m.

SOS/SCR101 - SOS/SCRIBE for Beginners

This introductory course is designed to teach users basic text processing using the SOS editor and the SCRIBE formattor on the DECsystem-10.

Using predefined document formats such as letter, article, thesis, manual, etc., a manuscript file is prepared using the SOS editor. The SCRIBE formatting program is then run to produce a document file. SCRIBE also allows experienced users the flexibility of introducing variations to these document types.

Major Topics of Discussion: Use of the editor commands, formatting using SCRIBE, and manipulation of files.

As this is a hands-on course, registrants must arrange to set up a DECsystem-10 account prior to the start of the course by contacting the UTCS Accounting Office.

Date: February 13-17, 1984

Time: 9:30 a.m. - 12:30 noon

continued...

Short Courses continued**SCR102 - SCRIBE for Beginners**

This course is intended for users who are already familiar with an editor on the DECsystem-10. (See SOS/SCR101)

Major Topics of Discussion: Use of predefined document formats, formatting commands, and file manipulation.

As this is a hands-on course, registrants must arrange to set up a DECsystem-10 account prior to the start of the course by contacting the UTCS Accounting Office.

Date: January 16-17, 1984

Time: 1:30 - 4:30 p.m.

WYL101 - Introduction to WYLBUR

This introductory course will present an overview of WYLBUR concepts. Students,

through hands-on practice, will be taught data collection, batch job submission, and output retrieval. WYLBUR allows for on-line interactive editing such as data creation, modification, and deletion and provides the user with the capability of submitting and retrieving jobs from a terminal.

Major Topics of Discussion: Data collection and manipulation, file handling, text editing, the DO EXEC, and how to get help.

Registrants must arrange to set up a WYLBUR account prior to the beginning of the course by contacting the UTCS Accounting Office.

Prerequisite: DDS101

Date: Jan. 16-18/Jan. 30-Feb. 1/Feb. 20-22, 1984

Time: 10:00 a.m. - 12:00 noon

Irene Rosiecki

Change Committee

Changes To The Academic and Administrative Systems

1. Conversion from 3350 disk drives to 3380s was completed for APL on October 10.¹
2. St. Michael's College was added as a BICS site on October 24.
3. The FORTRAN G compiler was removed from the IBM 3033/N12 computer on November 1.
4. SAS 82.3 was installed for production on the IBM 3033/N12 computer on October 24.
5. The second string of 3380 disk drives was installed on the 3033/N12 computer on October 28.
6. GT 40 and GT 44 services were closed down on October 31.
7. The new dataset monitor, DSMON, was installed the 3033/N12 computer on November 7.

8. COGS and OCP packages were approved for Class B support on November 17.
9. The creation of a batch version of the 9700 output writer was approved. This will allow users to produce their own 9700 output tape which they can transport to K.G. Campbell Co. for processing.

Changes To Other Systems and Services

1. PACX Classes 62 and 63 have been consolidated into Class 62.
2. Vertical filing bins were installed in the hallway outside of MP367 October 26.

Joan Coutts

Personnel Changes

Frank Naiolino. has joined UTCS this month. Frank is from ULTAS and is now working as Console Operator I in Operations. Welcome!

Operations has also had two promotions. **Keeny Leung** was promoted to Console

Operator III from Console Operator II, and **Ludlow Williams** was promoted to Console Operator II from Console Operator I. Congratulations to both of you.

Elizabeth Weitmann

Recent Acquisitions in the Computer Library

Advances in computers.
1983, v.22
Academic Press.

American Association for Artificial Intelligence.
Proceedings of the 3rd National Conference, Washington, D.C., Aug. 1983.
Los Altos, Calif., William Kaufman, Inc., 1983

American Society for Information Science.
Proceedings of the 46th Annual Meeting.
Knowledge Industry Pub., 1983.

Annual review of information science and technology.
1983, v.18.

Bates, William.
The computer cookbook: how to create small computer systems that work for you.
Englewood Cliffs, N.J., Prentice-Hall, 1983.

Bryan Paul.
Programming your APPLE II computer.
Blue Ridge Summit, Pa., Tab Books Inc., 1982. 288 p.

Clinic on Library Applications of Data Processing.
Proceedings of the 18th Annual Clinic, 1981.

De Jong, Marvin L.
Programming & interfacing the 6502, with experiments.
Indianapolis, Howard W. Sams, 1980.

Haugeland, John, ed.
Mind design: philosophy, psychology, artificial intelligence.
Cambridge, Mass., MIT Press, 1981.

Inman, Don.
APPLE machine language, by D. Inman and K. Inman.
Reston, Va., Reston Pub. Co., 1981.

International Conference on Fifth Generation Computer Systems, Tokyo, Oct. 1981.
Fifth generation computer systems, ed. by T. Moto-Pka.
Amsterdam, North-Holland, 1982.

Kahn, Robert E., et al, eds.
Electronic mail and message systems: technical and policy perspectives.
Arlington, Va., AFIPS, 1981.

Poling, Carol.
APPLE II word processing.
Indianapolis, Que Corporation, 1981.

Ralston, Anthony, ed.
Encyclopedia of computer science and engineering. 2d ed.
New York, Van Nostrand Reinhold, 1983.

Sowa, John F.
Conceptual structures: information

continued...

Computer Library continued

processing in mind and machine.
Reading, Mass., Addison-Wesley, 1984.

Tremblay, Jean-Paul and Sorenson, P.G.
An introduction to data structures
and applications.
New York, McGraw-Hill, 1984.

Zaks, Rodney and Lesea, A.
Microprocessor interfacing techniques. 3d ed.
Berkeley, Cal., SYBEX, 1979.

Stephanie Johnston

Cumulative Index for 1983

This cumulative index includes all *COMPUTERNEWS* issues in 1983, that is, numbers 204 through 211 inclusive. In the alphabetical sorting of subject headings, uppercase letters precede lowercase letters. For example, APL precedes Accounting. Articles are referenced by title, issue number, and page number and they are listed under subject headings by issue number.

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UTCS Terminal and Advising Sites

Names and Locations

- Central Advising Office (CAO), 978-HELP
- Education Facility (Educ), McLennan Labs, 60 St. George St., Room 221
- Engineering Annex (EAT, EUT, CDF), 11 King’s College Road, Rooms 103, 104, 107, 201, 203.
- Erindale College (Erin), 828-5339, Mississauga Road, Erindale Campus, Rooms 2005, 2039, 2045
- New Physics (NPT), Burton Tower, 60 St. George St., Room 1202
- Robarts, Robarts Library, 130 St. George St., Room 1061A
- Scarborough College (Scar), 284-3122, Military Trail, Scarborough Campus, Room S624, S625, S627, S628, S628A
- Sidney Smith (AST & ASUT), 100 St. George St., Rooms 1071, 1073, 2105
- St.Michael’s College, 121 St. Joseph St., Room 101
- Trinity College, 6 Hoskins Ave., Room 024
- Victoria University, 73 Queens Park Cres., Room 012.

Sites	Hours of Operation				Restrictions*	Advising
	Mon-Thurs	Fri	Sat	Sun		
AST	8:00-22:00	8:00-22:00	8:00-22:00	8:00-22:00	Research	Rm 2100
ASUT	24 hrs/day	24 hrs	24 hrs	24 hrs	BICS	No
CAO	10:00-18:00	10:00-18:00	closed	closed	Research	978-HELP
CDF	24 hrs/day	24 hrs	24 hrs	24 hrs	Res/Under	No
EAT	24 hrs/day	24 hrs	24 hrs	24 hrs	Research	Rm 106
Educ	9:00-16:30	9:00-16:30	closed	closed	Research**	978-HELP
(outer)	9:00-23:00	9:00-16:30	closed	closed	Research	978-HELP
Erin (2039)	9:00-21:00	9:00-17:00	12:00-17:00	12:00-17:00	Research	Rm 2005
(2045)	9:00-21:00	9:00-17:00	12:00-17:00	12:00-17:00	Undergrads	Rm 2005
EUT	24 hrs/day	24 hrs	24 hrs	24 hrs	BICS	No
NPT	24 hrs/day	24 hrs	24 hrs	24 hrs	Research (Key access)	978-HELP
Robarts	8:30-24:00	8:30-24:00	9:00-17:00	13:00-22:00	BICS	No
Scar	9:00-24:00	9:00-24:00	10:00-17:00	closed	Research Undergrads	Rm S624, S626 No
St.Michael’s	24 hrs/day	24 hrs	24 hrs	24 hrs	BICS	Arranged by College
Trinity	8:00-23:00	8:00-23:00	8:00-23:00	8:00-23:00	BICS	Arranged by College
Victoria	8:30-23:00	8:30-23:00	closed	closed	BICS	Arranged by College

* Research includes graduates, faculty, staff. ** May be unavailable due to UTCS courses.

Advising Hours

AST/ASUT	Monday to Friday, 10:00 - 18:00
CAO	Monday to Friday, 10:00 - 18:00
EAT	Monday to Friday, 13:00 - 17:00
Erin, Scar	During normal hours

Services Available Y=yes, N=no

	BICS	Keypunch	LIBRA	PACX	Printers	Oracle	UNIX
AST	N	Y	N	Y	Y	N	N
ASUT	Y	N	N	N	Y	Y	N
CDF	N	N	N	N	Y	N	Y
EAT	N	Y	N	Y	Y	N	N
EUT	Y	N	Y	N	Y	Y	Y
Educ	N	N	N	Y	N	N	N
Erin	N	Y	Y	Y	Y	N	Y
NPT	N	Y	N	Y	Y	N	N
Robarts	Y	N	N	N	Y	Y	N
Scar	N	Y	Y	Y	Y	N	Y
St.Michael’s	Y	N	N	N	Y	Y	N
Trinity	Y	N	N	N	Y	N	N
Victoria	Y	N	N	N	Y	N	N

UTCS Systems

3033/N12 Processor

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, TSO, WYLBUR, APL
- 12 megabytes of memory
- MVS with JES2

3033/U16 Processor

- located in McLennan Physical Laboratories
- provides instructional access using BICS
- 16 megabytes of memory
- UTS (modified UNIX Seventh Edition) under VM

4341 Mod II Processor

- located in McLennan Physical Laboratories
- provides administrative IMS/VS, DB/DC, Batch and TSO
- 16 megabytes of memory
- MVS with JES2

DECsystem-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 512 K - 36 bit words of memory
- TOPS-10 operating system, version 7.01A
- GALAXY queuing, spooling, and batch subsystem, Version 2.0

PDP 11/70

- located in McLennan Physical Laboratories
- provides UNIX text processing
- 4 megabytes of memory and typesetting
- UNIX Seventh Edition

VAX 11/750

- located in McLennan Physical Laboratories
- provides backup, program testing, and inter-communication relating to student services
- provides Spare Cycle Service
- 3 megabytes of memory
- VMS

Computer Disciplines Facility

VAX 11/750 (2 megabytes of memory)

VAX 11/780 (4 megabytes of memory)

- located in Engineering Annex
- provides Computer Science interactive access
- UNIX (Berkeley)

Communications & Technical Support

- located in Sandford Fleming Building, Fourth Floor
- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains small computer systems on a contract basis or on a cost-per-call basis.
- provides consulting on minicomputers; configures and installs minicomputer systems

Microcomputer Facility

- located in McLennan Physical Laboratories
- provides consulting on microcomputer systems
Machines available include:
IBM Personal Computer, APPLE II Plus, TRS-80 Model 1, S-100 CP/M System, Osborne Micro, plus a variety of others on loan from suppliers
- offers media conversion services

Scarborough College Systems

VAX 11/750 (2 megabytes of memory)

- provides instructional access using LIBRA
- VMS

VAX 11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley)

Erindale College Systems

VAX 11/780 (4 megabytes of memory)

- provides instructional access using LIBRA and Research access
- VMS

VAX 11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley)

Consulting and Enquiries

External Marketing Consultants	Dr. Bill Fehlner	MP345	6509
	Ihor Prociuk	MP345	6875
Erindale College	Peter Wall	2043	828-5311
Scarborough College	William Barek	S626	284-3173
General Enquiries	Dale Wright	EA206	4990
Account & Access Code Enquiries (U of T)	Agatha Stevens	MP331	8703
Account & Access Code Enquiries (External)	Silvia May	MP331	7148
Tape Library (Academic Services)	Stella Martin	MP368	7319
Tape Library (Administrative Services)	Miranda Fong	MP368	6693
U of T Computer Library	Stephanie Johnston	EA206	2987
Central Advising	HELP	1200 Baud Interactive Services	3959
System Status Enquiries (DEC)	4318	DATAPAC	4320, 0056
System Status Enquiries (IBM)	7393	Telenet	0302043200056
300 Baud Interactive Services	6200	Tymnet	<backspace> DPAC;302043200056

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